

What is claimed is:

- 1           1.       A method for performing cell broadcasting, comprising steps of:  
2           receiving in a mobile station at least one data unit of a short message service cell  
3           broadcasting (SMSCB) message broadcast from at least one cell of a communication  
4           system; and  
5           reading the SMSCB message based on a schedule message comprised of a  
6           plurality of fields for informing the mobile station of a location of the SMSCB message,  
7           a length of a schedule period, and whether a new SMSCB message has been broadcast.
- 1           2.       The method as claimed in claim 1, wherein the schedule message further  
2           comprises a field for informing the mobile station of a location of a next schedule  
3           message.
- 1           3.       The method as claimed in claim 1, wherein the schedule message further  
2           comprises fields for informing the mobile station of at least one of a start frame and an  
3           end frame of the schedule period.
- 1           4.       The method as claimed in claim 1, further comprising a step of mapping  
2           the data units to one of a common logical channel of a lower layer in the communication  
3           system and a dedicated logical channel of the lower layer in the communication system.

1           5.       The method as claimed in claim 4, wherein the schedule message further  
2 comprises a header determining the channel to which the data units are to be mapped.

1           6.       The method as claimed in claim 1, further comprising a step of mapping  
2 the data units to one of a common control channel of a lower layer in the communication  
3 system and a common traffic channel of the lower layer in the communication system.

1           7.       The method as claimed in claim 6, wherein the schedule message further  
2 comprises a header determining the channel to which the data units are to be mapped.

1           8.       The method as claimed in claim 1, wherein the schedule message is  
2 written as a protocol data unit.

1           9.       The method as claimed in claim 1, wherein the at least one data unit of  
2 the SMSCB message is transmitted through a common traffic channel, the common  
3 traffic channel being multiplexed at a lower layer in the communication system with a  
4 common control channel, a dedicated traffic channel, and a dedicated control channel and  
5 wherein the common traffic channel and the common control channel are common  
6 logical channels and the dedicated traffic channel and the dedicated control channel are  
7 dedicated logical channels.

1           10.     The method as claimed in claim 1, wherein the schedule message is  
2     transmitted from a higher layer in the communication system and received at a lower layer  
3     in the communication system.

1           11.     The method as claimed in claim 10, wherein the lower layer performs  
2     scheduling of the SMSCB message and attaches to the schedule message a header  
3     indicative of schedule message length.

1           12.     The method as claimed in claim 10, wherein the higher layer is a radio link  
2     control layer.

1           13.     The method as claimed in claim 10, wherein the lower layer is a media  
2     access control (MAC) layer.

1           14.     The method as claimed in claim 13, wherein the schedule message further  
2     comprises a MAC header.

1           15.     The method as claimed in claim 14, wherein the MAC header comprises:  
2             a first field indicating whether the at least one data unit is to be mapped to one of  
3     a common logical channel of the MAC layer or a dedicated logical channel of the MAC  
4     layer; and

5           a second field indicating whether the at least one data unit is to be mapped to one  
6   of a common control channel of the MAC layer or a common traffic channel of the  
7   MAC layer.

1           16.     The method as claimed in claim 15, wherein, if the second field indicates  
2   that the data units are to be mapped to the common traffic channel, the second field also  
3   indicates whether the data units comprise the SMSCB message or the schedule message.

1           17.     The method as claimed in claim 1, wherein the fields of the schedule  
2   message are at least a length indicator field, a schedule period start frame field, a schedule  
3   period end frame field, and a new SMSCB message indicator field.

1           18.     The method as claimed in claim 17, wherein the schedule message further  
2   comprises a header, the header indicating whether the data units are to be mapped to a  
3   common logical channel or a dedicated logical channel and whether the data units are to  
4   be mapped to a common control channel or a common traffic channel.

1           19.     The method as claimed in claim 17, wherein the length indicator field  
2   determines a number of octets  $x$  of the SMSCB message, where  $x$  is equal to any whole  
3   number.

1           20.     The method as claimed in claim 19, wherein the schedule period start  
2     frame field and the schedule period end frame field define a schedule period for a  
3     renewed SMSCB message.

1           21.     The method as claimed in claim 20, wherein the new SMSCB message  
2     indicator field indicates a start frame of the renewed SMSCB message.

1           22.     A method for performing cell broadcasting, comprising steps of:  
2             scheduling a short message service cell broadcasting (SMSCB) message;  
3             multiplexing, at a lower layer in a first communication system, a common traffic  
4     channel with a common control channel, a dedicated traffic channel, and a dedicated  
5     control channel, wherein the common traffic channel and the common control channel  
6     are common logical channels and the dedicated traffic channel and the dedicated control  
7     channel are dedicated logical channels; and  
8             transmitting a schedule message through the common traffic channel of the first  
9     communication system.

1           23.     The method as claimed in claim 22, further comprising a step of  
2     segmenting the SMSCB message into a plurality of data units to be scheduled.

1           24.     The method as claimed in claim 22, wherein the schedule message is  
2     received at a second communication system for reading the SMSCB message and wherein

3 the first communication system is one of a mobile station and a network and the second  
4 communication system is the other.

1 25. The method as claimed in claim 24, wherein the schedule message is  
2 comprised of a plurality of fields for informing the mobile station of a location of the  
3 SMSCB message, a length of a schedule period, and whether the network has broadcast a  
4 new SMSCB message.

1 26. The method as claimed in claim 24, wherein the schedule message further  
2 comprises a field for informing the mobile station of a location of a next schedule  
3 message.

1 27. The method as claimed in claim 24, wherein the schedule message further  
2 comprises fields for informing the mobile station of at least one of a start frame and an  
3 end frame of the schedule period.

1 28. The method as claimed in claim 23, wherein the lower layer is a media  
2 access control (MAC) layer.

1 29. The method as claimed in claim 28, wherein the schedule message further  
2 comprises a MAC header.

1 30. The method as claimed in claim 26, wherein the MAC header comprises:

2 a first field indicating whether the plurality of data units are to be mapped to one  
3 of the common logical channel of the MAC layer or the dedicated logical channel of the  
4 MAC layer; and

5 a second field indicating whether the plurality of data units are to be mapped to  
6 one of the common control channel of the MAC layer or the common traffic channel of  
7 the MAC layer.

1 31. A method for cell broadcasting, comprising steps of:

2 receiving a schedule message through a common traffic channel of a first  
3 communication system;

4 demultiplexing, at a lower layer in the first communication system, a common  
5 traffic channel with a common control channel, a dedicated traffic channel, and a  
6 dedicated control channel, wherein the common traffic channel and the common control  
7 channel are common logical channels and the dedicated traffic channel and the dedicated  
8 control channel are dedicated logical channels; and

9 reading a short message service cell broadcasting (SMSCB) message based on the  
10 schedule message.

1 32. The method as claimed in claim 31, further comprising a step of  
2 reconstructing the SMSCB message from a plurality of scheduled data units.

1 33. The method as claimed in claim 31, wherein the schedule message is  
2 transmitted from a second communication system for scheduling the SMSCB message

3 and wherein the first communication system is one of a mobile station and a network and  
4 the second communication system is the other.

1 34. The method as claimed in claim 33, wherein the schedule message is  
2 comprised of a plurality of fields for informing the mobile station of a location of the  
3 SMSCB message, a length of a schedule period, and whether the network has broadcast a  
4 new SMSCB message.

1 35. The method as claimed in claim 33, wherein the schedule message further  
2 comprises a field for informing the mobile station of a location of a next schedule  
3 message.

1 36. The method as claimed in claim 33, wherein the schedule message further  
2 comprises fields for informing the mobile station of at least one of a start frame and an  
3 end frame of the schedule period.

1 37. The method as claimed in claim 32, wherein the lower layer is a media  
2 access control (MAC) layer.

1 38. The method as claimed in claim 37, wherein the schedule message further  
2 comprises a MAC header.



1           39.     The method as claimed in claim 37, wherein the MAC header comprises:  
2           a first field indicating whether the plurality of scheduled data units are to be  
3 mapped to one of the common logical channel of the MAC layer or the dedicated logical  
4 channel of the MAC layer; and  
5           a second field indicating whether the plurality of scheduled data units are to be  
6 mapped to one of the common control channel of the MAC layer or the common traffic  
7 channel of the MAC layer.

1           40.     A system for performing cell broadcasting, comprising:  
2           a UTRAN-MAC-c entity for  
3                 scheduling a short message service cell broadcasting (SMSCB)  
4                 message by segmenting the SMSCB message into a plurality of data units,  
5                 multiplexing, at a UTRAN lower layer in a first communication  
6                 system, a common traffic channel with a common control channel, a  
7                 dedicated traffic channel, and a dedicated control channel, wherein the  
8                 common traffic channel and the common control channel are common  
9                 logical channels and the dedicated traffic channel and the dedicated  
10                control channel are dedicated logical channels, and  
11                transmitting a schedule message through the common traffic  
12                channel of the first communication system; and  
13           a UE-MAC-c entity for  
14                receiving a schedule message through a common traffic channel  
15                of a first communication system,

16 demultiplexing, at a UE lower layer in the first communication  
17 system, a common traffic channel with a common control channel, a  
18 dedicated traffic channel, and a dedicated control channel, wherein the  
19 common traffic channel and the common control channel are common  
20 logical channels and the dedicated traffic channel and the dedicated  
21 control channel are dedicated logical channels, and  
22 reading the SMSCB message based on the schedule message, by  
23 reconstructing the SMSCB message from the plurality of data units,  
24 wherein the schedule message is comprised of a plurality of fields for informing  
25 the mobile station of a location of the SMSCB message, a length of a schedule period,  
26 and whether a new SMSCB message has been broadcast.

1 41. The method as claimed in claim 40, wherein the schedule message further  
2 comprises a field for informing the mobile station of a location of a next schedule  
3 message.

1 42. The method as claimed in claim 40, wherein the schedule message further  
2 comprises fields for informing the mobile station of at least one of a start frame and an  
3 end frame of the schedule period.

1 43. The method as claimed in claim 40, wherein the lower layer is a media  
2 access control layer.